Rock Island Arsenal
Shop H
(Building 66)
Rodman Avenue between Third Street
and Fourth Street
Rock Island
Rock Island County
Illinois

HAER No. IL-20-D

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
Washington, D.C. 20013-7127

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HISTORIC AMERICAN ENGINEERING RECORD

ROCK ISLAND ARSENAL
SHOP H
(Building 66)
HAER No. IL-20D

Location: Rodman Avenue Between Third Street and Fourth Street,
Rock Island Arsenal,
Rock Island,
Rock Island County, Illinois
UTM: 15.705020.4599020
Quad: Davenport East

Date of Construction: 1878-1886

Present Owner and Occupant: U.S. Army

Present Use: Small arms production

Significance: After taking command of Rock Island Arsenal in 1865, General Thomas Jefferson Rodman devised a master plan for the installation calling for the construction of ten large, Greek Revival, manufacturing shops, five on each side of the island's major east-west thoroughfare. Under construction from 1878 to 1886, Shop H was the ninth to be completed. With its companion facilities completed under the Rodman plan, Shop H forms a cohesive architectural statement, which, in terms of both scale and style, has no counterpart among government installations in the Midwest.

In addition to their architectural importance, the Rodman shop buildings are the administrative and technological core of Rock Island Arsenal, one of only two "old-line," nineteenth-century arseanls still in operation for munitions production. The buildings are vital for understanding the history of American ordnance development and manufacture from the Spanish American War to the present. Shop H is part of the Rock Island Arsenal National Register Historic District.

Historian: Jeffrey A. Hess, February 1985

Architectural Historian: David Arbogast, February 1985

PART I. HISTORICAL INFORMATION

A. Physical History:

1. Date of erection: According to Colonel Daniel Webster Flagler, who succeeded General Thomas Jefferson Rodman as the arsenal's commandant in 1871, the building site was selected by Rodman in February 1866 (Flagler, p. 118). Excavation commenced in August 1878, and required almost a year to complete. Because of unstable underlying strata, the "total depth of excavation below . . . the surface of the ground [was] 67 feet." The foundation consisted of "alternate layers of concrete and good Joliet rubble-stone masonry, tied together in places with large footing stones. The masonry was further supported in places by arches butting into solid rock at the sides ("Report, 1879," pp. 203-204; see also "Report, 1880," pp. 253-257). By June 1882, "about one-half of the area walls [had] been built" ("Report, 1882," p. 79). By June 1884, the walls had been completed; the building was finished in 1886 ("Report, 1884," p. 79; Nothstein and Stephens, p. 157). A datestone above the central entrance on the south facade bears the inscription, "1881."

2. Architect: Although Shop H was designed and built under the supervision of Colonel Daniel Webster Flagler, the building was closely patterned after Shops B and C (see HAER Nos. IL-20A, IL-20G), which were designed by General Thomas Jefferson Rodman (Flagler, p. 261).

Born in Salem, Indiana in 1815, Rodman graduated from West Point in 1841 and was assigned to Allegheny Arsenal in Pittsburgh as an officer of the Ordnance Department. During the next two decades, he developed techniques for hollow casting cannon and for producing perforated propellant, which revolutionized the manufacture and use of artillery (Zabecki, pp. 55-56; Flagler, pp. 262-266).

As commandant of Watertown Arsenal near Boston from 1859 to 1865, Rodman was responsible for designing a machine shop for the installation, which was a simplified, brick version of the Greek Revival stone manufacturing shops he subsequently planned for Rock Island Arsenal (Baylies and Bahr, p. 37). Rodman assumed command of Rock Island Arsenal in 1865; he died of illness at the installation in June 1871 (Flagler, pp. 116, 261).

3. Original and subsequent owners: U.S. Army.

4. Builder, contractor, suppliers:

"A contract for the stone was made with Mr. Edwin Walker, of Lemont, Ill. The [lime]stone in Mr. Walker's quarries is precisely the same as the Joliet stone used in the other shops. Mr. Walker's shipments of stone were very dilatory and unsatisfactory till in May, 1879, when he commenced procuring his stone from Messrs. Sanger & Moody's quarries, at Joliet, Ill. The latter parties have shipped the stone promptly, of excellent quality, and in quantities as required. The Chief of Ordnance has now, by authority of the Secretary of War, directed that Mr. Walker's contract be annulled, and that a new contract be made . . . with Messrs. Sanger & Moody ("Report, 1879," p. 204; see also "Report, 1880," p. 253).

"Much of the manufacturing effort at the arsenal before the Spanish-American War concentrated on construction of the buildings. The rolling mill [in Shop F (see HAER No. IL-20C)] produced most of the roof trusses. . . . The foundry [in Shop E (see HAER No. IL-20H)] and machine shop [in Shop C (see HAER No. IL-20G)] made much of the machinery and building hardware such as the locks and stairways. The carpenter shop [in Shop C] made the window frames. Contract labor did some of the work while civilian employees and soldiers did other portions of the job" (Bouilly, p. 125; see also "Report, 1882," pp. 78-79).

5. Original plans and construction: On February 7, 1866, Rodman submitted to the War Department a schematic site plan of the arsenal, proposing the construction of ten manufacturing shops, five on each side of the arsenal's main east-west thoroughfare (later named Rodman Avenue). The plan was published in 1877 (Flagler, Plate I). It delineates the ten buildings, including Shop G, as U-shaped structures with a crossbar connecting the legs of the "U" at midpoint. According to Flagler, the configuration of the buildings was almost immediately changed. "To add strength to the walls [and] beauty to the architecture," two porticos were added to the front and to each of the sides of the buildings. Also, the crossbar between the legs of the "U" was removed "to leave the courtyard clear for teaming purposes" (Flagler, p. 123). The revised plan was published in 1877 (Flagler, Figure 1, inset on Plate I). The Rock Island Arsenal Engineering Plans and Services Division has a microfiche copy of an undated floor plan for Shop H, signed by "D. W. Flagler." A similar "Plan of Shop I" was published in 1879 ("Report, 1879," Appendix K, Plate II). Both these plans are identical to the schematic plan published in 1877. No original elevations have been located.

Shop H was built with a skylight "4 feet wide along the whole of one side of the peak" ("Report, 1885," p. 619). This system had been previously used in Shops G and I (see HAER Nos. IL-20I, IL-20J), and it provided better ventilation and light than the small, scattered sylights used in the construction of the first shops during the early 1870s ("Report, 1881," p. 58).

The earliest known view is a photograph in the picture collection of the Rock Island Arsenal Historical Office (see HAER Photo No. IL-20D-17). This photograph confirms Flagler's general description and the details of the 1877 plan. The building's present configuration conforms to the 1877 plan, with two exceptions. First, a three-story, stone-veneer building of identical Greek Revival architecture now connects the pavilions on Shop H's east facade to Shop K. Second, a one-story, poured-concrete building has been added to the east elevation of the west wing, infilling most of the courtyard.

6. Alterations and additions: At undetermined dates, the original slate roofing was removed, and the original stone entrance steps were replaced by concrete steps.

In 1914, Congress appropriated $65,000 for "repairs to the foundations and walls of shop building H"; the east facade of the east wing was taken down and rebuilt with the original masonry in 1915-1916 ("Report, 1915," p. 37; "Report, 1916," p. 37). The Rock Island Arsenal Historical Office has a series of 1915 photographs documenting this work. The reconstruction of the wall was necessitated by the settling of the foundation, an eventuality foreseen by Flagler during the building's construction ("Report, 1880," p. 257).

In 1917-1918, the facades of the pavilions on the building's east elevation were demolished. The original stonework from the demolished sections was reused in constructing a three-story, stone-veneered, Greek Revival structure connecting the remaining portions of the pavilions to Shop K (see HAER No. IL-20E). The new building, designated as "G-I Connection," was designed and built by Stone and Webster Company of Boston; it was completed in May 1918 (Completion Report, p. 3; see HAER No. IL-20R).

In 1918, a one-story, poured-concrete building was added to the east wall of the west wing; it is currently designated as "Building 69" ("Real Property Inventory," p. 3).

In 1947, metal roofing was installed. The Rock Island Arsenal Engineering Plans and Services Division has a photograph

documenting this alteration. It is captioned, "228-16881 / October 6, 1947 / Shops H, H-K Annex, and K, Buildings No. 66, 67, 68 / Looking southeast / Installation of Aluminum Roof, Goodwin System, Overly Mfg. Co., Fabricators; Holmquist & Co., Roofers."

B. Historical Context:

After assuming command of Rock Island Arsenal in August 1865, General Thomas Jefferson Rodman devised a master construction plan for the installation, which he submitted to the War Department on February 7, 1866. In its general outline, Rodman's plan called for the construction of ten large, stone, manufacturing shops, five on each side of the arsenal's main east-west thoroughfare (later named Rodman Avenue). The establishments on the south side of the avenue were called "arsenal shops," which meant they were to be devoted to the manufacture of general ordnance items. Those on the north side were called "armory shops," because they were intended for small arms production. All ten shops were designed in a Greek Revival style, which Rodman had previously used in designing a machine shop at Watertown Arsenal near Boston. Although none of the shops was completed before Rodman died of illness in June 1871, all ten were eventually finished by his nineteenth-century successors (Flagler, p. 118; Nothstein and Stephens, pp. 153-157).

Situated on the eastern half of "armory row," Shop H was the ninth shop to be completed. Excavation began in 1878, and construction concluded in 1886. Shop H was originally intended as "an iron-finishing shop" for small arms ("Report, 1881," p. 59). To this end, the arsenal command in 1882 prepared a series of floor plans for equipping the shop with "machinery & shafting . . . for manufacturing 1500 breech loading rifles per day." (Microfiche copies of these plans are on file in the Rock Island Arsenal Engineering Plans and Services Division.) Congress however, never appropriated funds for the necessary equipment. Shop H served as a general purpose storehouse at least until the early 1900s, and probably until World War I, when the building was converted into a take-down and reassembly shop for artillery gun carriages (Stanley, p. 176; "General Course," pp. 54-71). These operations utilized standard, mechanic's hand tools.

After the Armistice, the arsenal's manufacturing program was dramatically curtailed, and the remaining activities were eventually "concentrated in the large Shop M (see HAER No. IL-20-AA), leaving most shops of Armory Row inactive" (Wickstrom, p. 47). In 1940, Shop H was re-equipped and reopened to manufacture machine guns; new

heat-treating equipment was installed in the basement, and a combination of new and reconditioned World-War-1 machine tools were installed on the upper three floors. Unliked the belt-driven tools of the World-War-I, small arms manufacturing program, all the equipment was individually motorized. In terms of general layout, the first floor contained mills, profilers, drill presses, reamers, lathes, and screw machines used in barrel manufacture (see HAER Photo No. IL-20D-18), while the second and third floors housed the filing, grinding, and inspection departments ("History Artillery Vehicle Department," n.p.). Although the building's machinery was modernized after World War 11, it still remains a small arms plant. Shop H has been designated as "Building 66" at least since World War 1I ("History Artillery Vehicle Department," n.p.; for additional documentation, see HAER No. IL-20).

Prepared by: Jeffrey A. Hess
MacDonald and Mack Partnership
February 1985

PART I1. ARCH1TECTURAL INFORMAT1ON

A. General Statement:

1. Architectural character: The building is a massive, late Greek Revival style, U-plan, limestone structure. It is two-and-one-half stories above a basement, with a gabled roof sheltering an attic. 1t forms part of a symmetrical set of five buildings along the north side of Rodman Avenue, which is mirrored by a matching set on the south side.

2. Condition of fabric: The building is well-maintained and is in good condition.

B. Description of Exterior:

1. Overall dimensions: The main (south) block of the building (HAER Photo Nos. IL-20D-1 and 1L-20D-3) measures 210' x 60' (19 bays on the south elevation and 9 bays on the north elevation). Two wings (HAER Photo Nos. IL-20D-2 and 1L-20D-3), each measuring 240' (28 bays on their exterior elevations and 21 bays on their courtyard elevations) x 60' (5 bays on their north elevations) stretch north from the east and west ends of the main block. Near each end of the outer, long elevations of the wings are projecting pavilions measuring 60' (5 bays) and extending 15' (1 bay) from the wing elevations. The building is two-and-one-half stories tall with a full basement and attic.

2. Foundations: Coursed, rock-faced ashlar limestone measuring 3'-0" thick below a dressed ashlar limestone water table.

3. Walls: Coursed, rock-faced ashlar limestone (HAER Photo Nos. IL-20D-1, IL-20D-2, IL-20D-3, IL-20D-4, and IL-20D-5) decreasing in thickness by 6" with eacb story. Colossal rock-faced ashlar limestone pilasters (HAER Photo Nos. IL-20D-1, IL-20D-2, IL-20D-3, IL-20D-4, and IL-20D-5) rising from the water table to tbe entablature divide the elevations into a regular bay system. The dressed limestone entablature (HAER Photo Nos. IL-20D-1, IL-20D-2, and IL-20D-3) carries a projecting dressed limestone cornice. The pedimented gable ends (HAER Photo Nos. IL-20D-1, IL-20D-2, and IL-20D-3) are rock-faced ashlar limestone with dressed limestone cornices. There is a carved limestone block above the central entrance of the south elevation bearing the date 1881.

4. Structural systems: Limestone bearing wall. Coursed, rock-faced limestone piers (HAER Photo Nos. IL-20D-6 and IL-20D-7) 20' on-center in the basement support fluted Doric cast-iron columns (HAER Photo Nos. IL-20D-8, IL-20D-9, IL-20D-12, and IL-20D-15) on the first and second floors. First, second, and attic floor systems are wrought-iron stringers and joists with brick vaulting between. The roof system is iron Fink trusses (HAER Photo No. IL-20C-16).

5. Porches: Porches (HAER Photo Nos. IL-20D-1, IL-20D-2, IL-20D-3, and IL-20D-4) arelocated at the center bays ofthe pavilions (except abutting Building 67), the north ends of the wings, the third bays from each end of the south elevation of the main block, and the center of the main block. Typical porches consist of poured concrete steps on rock-faced ashlar limestone base walls.

6. Light wells: Across the south elevation there is a narrow window well (HAER Photo Nos. IL-20D-1 and IL-20D-4) with rock-faced ashlar limestone walls to grade and a black steel pipe railing sbove grade.

7. Chimneys: Rising to above the eaves from within a window opening near the center of the west elevation of the west wing and from a first-floor window opening near the north end of the same elevation are round sheet metal flues (HAER Pboto Nos. IL-20D-1 and IL-20D-2).

8. Openings:

   a. Doorways: Principsl doorways (HAER Photo Nos. IL-20D-1, IL-20D-2, IL-20D-3, and IL-20D-4) are centered in the northwest, southeast pavilions, the wing ends, the third bays from each end of the south elevation, and the first and sixteenth bays

from the soutb end of the courtyard elevations of the wings. Each has a rock-faced limestone segmental-arched head with a rock-faced keystone, and rock-faced limestone jambs with large semi-circular base blocks projecting into the doorway. Most of the original limestone sill blocks have been replaced with poured concrete sills. All but the doorway at the north end of the east wing and the north doorway of the courtyard elevation contain sets of three two-light over single-panel original wood doors with transoms (HAER Photo No. IL-20C-10). The doorway at the north end of the east wing contains a modern overhead door. The north doorway of the west elevation of the east wing has been opened to accommodate the ramp to Building 69. Narrower doorways (HAER Photo No. IL-20D-1) are located in the center of the south elevation of the main block and in the north basement elevation of the northwest pavilion. These openings are identical to those of the principal doorways, differing only in width. The center doorway of the south elevation contains a pair of original doors and transom similar to that of the larger openings. The pavilion doorway contains a pair of original wood doors filling the arch. Their exterior face is vertical, tongue-and-groove board and their interior face is diagonal, tongue-and-groove board. In the seventh bay from the south of the courtyard elevations of the wings are doorways matching the width of standard window openings. They have ashlar limestone jambs and dressed limestone sill and lintel blocks, similar to tbe adjscent window openings, differing only in length. All four of these doorways contain original single wood doors and transoms similar to those in the other first-floor doorways. The two original doorways in the east elevation of tbe east wing have been obliterated by later building additions. In the basement, the southernmost bay of the west elevation of the west wing, originally a window opening, now contains a four-panel, wood door.

b. Windows: Typical first- and second-floor window openings (HAER Photo Nos. IL-20D-1, IL-20D-2, snd IL-20D-3) contain six-over-six, double-hung, wood sash (HAER Photo No. IL-20D-11), and have rock-faced limestone jambs, cut limestone sills and flat lintels. Paired window openings (HAER Photo Nos. IL-20D-5 and IL-20D-14) above the primary doorways have segmental-arcbed, rock-fsced limestone voussoirs and keystones. Above the narrow, center doorways on the south and north main block elevations are similar window openings (HAER Photo No. IL-20D-1) containing pairs of four-over-four, double-hung, wood sash (HAER Photo No. IL-20D-13). Attic window openings (HAER Photo Nos. IL-20D-1, IL-20D-2, and IL-20D-3) contain small, single-light, pivoting, wood sash and are typicslly arranged in pairs of small openings in the building entablature with sets of four centered in the gable ends and sets of three in the cen-

ters of the south and north main block elevations. These window openings have rock-faced limestone jambs and sills and lintels formed by the entablature and frieze. The gable ends contain paired window openings (HAER Photo Nos. IL-20D-1, IL-20D-2, and IL-20D-3) with rock-faced jambs, segmental-arched, rock-faced limestone arches and keystones and dressed limestone sills. The basement window openings (HAER Photo Nos. IL-20D-1, IL-20D-2, and IL-20D-3) originally contained three-over-three, double-hung, wood sash in rock-faced limestone jambs, lintels formed by the water table, and flat dressed limestone sill blocks. The basement and first-floor window openings of the east wall of the east wing have been filled with concrete block. All surviving sash are painted white.

c. Other openings: Near the outside south corners of the east and west elevations are single limestone openings containing concrete steam tunnels and having semi-circular arches with rock-faced keystones and voussoirs, jambs, and sill blocks.

9. Roof:

a. Shape, covering: The roof (HAER Photo Nos. IL-20D-1, IL-20D-2, and IL-20D-3) is a cross-gable form covered with standing seam metal roofing.

b. Cornice, eaves: The cornice and eaves (HAER Photo Nos. IL-20D-1, IL-20D-2, and IL-20D-3) are the original cut limestone in a Classical molded style. The interior metal gutter system is tied to exterior metal leaders which lead to an underground drainage system.

10. Ancillary buildings: In the courtyard, and connected to the east wing, is Building 69, a plating and tinning shop (HAER Photo No. IL-20D-3). It is a one-story building on grade with a flat roof featuring a large monitor in its center running north to south. The building is poured concrete frame construction with steel window walls filling the open areas of the frame. A typical bay contains a twenty-light, fixed sash with four-light, operable, awning sash. Modern overhead doors provide access at the sides with personnel doorways next to them. The vertical portions of the monitor are filled with corrugated steel panels.

C. Description of Interior:

1. Floor plans: The building has essentially open floor plans with relatively small areas partitioned for use as foremen's offices (HAER Photo No. IL-20D-9), typically located at the southwest and southeast corners of the main block, and for restrooms, typically located at the north ends of the wings. Two modernized freight

elevators are located at the intersection of the wings with the main block.

2. Stairways: There are four open U-plan stairways (HAER Photo Nos. IL-20D-12 and IL-20D-15) with intermediate landings rising from the basement to the attic. These are located in each of the pavilions. They are cast iron in curvilinear Italianate style forms with open risers and open, decorative railing supports and no newel posts. The railings are used at each of the main floor landings as well as with the stairs. The handrails are dark varnished wood and have iron pipe railings added above them to meet modern safety standards. The bottom flights of stairs in the hssement are limestone blocks. Near the north end of the west elevation of the east wing are reinforced concrete ramps leading from the basement and the first floor to Building 69 in the courtyard.

3. Flooring: Basement, first-, and second-story flooring (HAER Photo Nos. IL-20D-6, IL-20D-7, IL-20D-8, IL-20D-9, IL-20D-10, IL-20D-12, and IL-20D-14) is poured concrete with a sealer applied to it and painted in the restrooms. The attic has wood flooring with a clear varnish finish. Along the center of the attic floor is a set of steel plates forming a track.

4. Wall and ceiling finishes: Outer basement walls and interior piers (HAER Photo Nos. IL-20D-6 and IL-20D-7) are painted rock-faced ashlar limestone. Interior partition walls are painted concrete block, brick and wire cage (HAER Photo No. IL-20D-6). The ceiling (HAER Photo Nos. IL-20D-6 and IL-20D-7) is exposed and painted iron joists and stringers and brick vaulting.

   Outer first- and second-floor walls (HAER Photo Nos. IL-20D-10, IL-20D-11, IL-20D-12, IL-20G-13, and IL-20D-14) are painted rock-faced limestone. The cast-iron columns (HAER Photo Nos. IL-20D-8, IL-20D-9, IL-20D-12, and IL-20D-15) are exposed and painted. Offices and restrooms are enclosed with painted, vertical, beaded, tongue-and-groove board partitions with fixed, twelve-light, wood sash (HAER Photo No. IL-20D-9). On the second floor there are a few wire cage partitions for storage areas. The ceilings (HAER Photo Nos. IL-20D-8, IL-20D-9, and IL-20D-12) are exposed and painted iron joists and stringers and hrick vaulting.

   The outer attic walls are unpainted rock-faced ashlar limestone. Interior partition walls are painted, vertical, beaded, tongue-and-groove hoards of which some walls incorporate fixed, wood, window sash; wire cage wslls; and plywood sttached to wire fencing. The ceiling (HAER Photo No. IL-20D-16) is the open wood deck and rafters and purlins of the roof construction.

5. Openings:

   a. Doorways and doors: The interior has no original doorways.

   b. Windows: There are no window casings. Window openings (HAER Photo Nos. IL-20D-11, IL-20D-13, and IL-20D-14) are formed by the adjacent limestone.

6. Hardware: The original doors, discussed above, retain heavy cast-brass plate hinges and elaborate door pulls incorporating "RIA" in their casting. Original window hardware includes sash cords, pulleys, weights, and ornate sash lifts.

7. Mechanical equipment:

   a. Heating, air conditioning, ventilation: The building is heated by steam radiators (HAER Photo No. IL-20D-8) from a central heating plant (Building 227). There is no air conditioning. Ventilation is provided by opening the window sash.

   b. Lighting: Artificial illumination is by means of fluorescent electrical fixtures (HAER Photo Nos. IL-20D-6, IL-20D-8, IL-20D-9, IL-20D-10, IL-20D-12, IL-20D-13, and IL-20D-16) on all floors. No evidence remains of original artificial lighting systems.

   c. Plumbing: Although no original plumbing fixtures survive, old toilet stalls do survive in the restrooms. The basement has two sets of ten stalls and the first and second floors each have single sets of ten stalls. Each stall has vertical, beaded, tongue-and-groove, board walls and hinged, panelled, wood doors.

   d. Elevators: Both original freight elevators survive, albeit, in a modernized form.

   e. Machinery: No original machinery survives. For security reasons, no information was available on existing machinery.

D. Site:

1. General setting and orientation: The building is set on the northeast corner of Rodman Avenue, the arsenal's principal street, and Third Street. East of the building is Building 68, another small arms assembly building. Connecting the two buildings is Building 67, a shop office. North of Building 67 and attached to the east elevation of the east wing is Building 72, a small arms assembly building. The paved interior courtyard contains Building 69, a plating and tinning shop (HAER Photo No. IL-20D-3). North of the

buiding runs North Avenue. The relatively level site slopes gently to the north.

Prepared by: David Arbogast
Architectural Conservator
February 1985

PART III. SOURCES OF INFORMATION

A. Original Architectural Drawings:

The Rock Island Arsenal Engineering Plans and Services Division has microfiche copies of the following floor plans:

"[Floor Plan for Shop] H," N.d., microfiche no. R20000540. Shows original building configuration; identical to plan published in 1877 for earlier arsenal shops (Flagler, Figure 1, inset on Plate I).

"Arrangement of Machinery & Shafting, in Stock Shop / First Floor," August 1882, microfiche nos. R20000535-R20000536. Shows proposed layout for small arms production equipment that was never installed.

"Arrangement of Machinery & Shafting, in Stocking Shop / Second Floor, August 1882, microfiche nos. R20000534, R20000537. Shows proposed layout for small arms production equipment that was never installed.

B. Early Views:

The Rock Island Arsenal Historical Office has the following early photographs:

Photograph of the south facade, captioned on the back, "Building 66, front / looking north / about 1900 / from R[ock] I[sland] Public Library" (see HAER Photo No. IL-20D-17). View documents original construction.

Photograph of small arms production equipment during World War II, captioned, "228-4403 April 7, 1941 / Shop H. Small Arms Machining Dept. First Floor, south-end, looking east" (see HAER Photo No. IL-20D-18).

Photograph of 1915 reconstruction of east wall of east wing, captioned "228-24699 X.O. 5386-W2 8/19/15 / East Wall of East Wing, Shop 'H.'

Photograph of 1915 reconstruction of east wall of east wing, captioned, "228-24527 4/12/15 / East Wall, Shop 'H," showing excavation around foundation."

Photograph of 1915 reconstruction of east wall of east wing, captioned, "228-24597 5/11/15 / South East Portico, East Wing, Shop 'H.'"

Photograph of 1915 reconstruction of east wall of east wing, captioned, "228-24597 5/20/15 / South East Portico, East Wing, Shop 'H.'"

Photograph of 1915 reconstruction of east wall of east wing, captioned, "228-24692 X.O.5386-W2 8/17/15 / East Wall of East Wing / Shop 'H.'"

C. Bibliography:

1. Primary and unpublished sources:

Baylies, Libby and Bahr, Betsy. "Historic American Buildings Survey of the United States Materials and Mechanics Research Center, Watertown, Massachusetts." 1982. HAER No. MA-20, HABS/HAER Collection, Prints and Photographs Collection, Library of Congress. Discusses Rodman's architectural work at Watertown Arsenal.

Hess, Jeffrey A., and Mack, Robert C. "Historic Properties Report Rock Island Arsenal, Rock Island, Illinois". Prepared by MacDonald and Mack Partnership, and Building Technology Incorporated for the Historic American Buildings Survey/Historic American Engineering Record, National Park Service, U.S. Department of the Interior, 1985. The report, with accompanying inventory cards, is filed as field records in the Prints and Photographs Division, Library of Congress, under HAER No. IL-20.

"History Artillery Vehicle Department, 1939-1942," vols. 3. Rock Island Arsenal Historical Office. Describes reopening of building as a small arms plant for World War II.

Real Property Cards, Engineering Plans and Services Division, Rock Island Arsenal. Briefly describes building's structural characteristics and provides sketchy history of maintenance operations.

"Real Property Inventory," computer printout, March 31, 1982. Rock Island Arsenal Engineering Plans and Services Division. Provides construction date for Building 69.

Wickstrom, George. "History of Rock Island Arsenal, Section 1, 1919-1939," N.d. Rock Island Arsenal Historical Office.

Discusses curtailment of arsenal's manufacturing program after World War I.

2. Secondary and published sources:

Bouilly, Robert. "Arsenal Island." Joined by a River: Quad Cities, ed. Frederick I. anderson. N. pl.: Lee Enterprises, Incorporated, 1982. Excellent historical analysis of the arsenal's development to about 1910, written by a historian in the Rock Island Arsenal Historical Office.

Completion Report Covering All Construction Projects Accomplished Under Supervision of the Construction Division, U.S. Army at Rock Island Arsenal. Rock Island Arsenal, 1919. Rock Island Arsenal Historical Office. Discusses planning and construction of connecting building between Shops H and K.

Flagler, D[aniel] W[ebster]. A History of the Rock Island Arsenal from Its Establishment in 1863 to December 1876. Washington, D.C.: Government Printing Office, 1877. Most detailed discussion of general site planning for arsenal's shops.

Nothstein, Ira O. and Stephens, Clifford W. A History of Rock Island Arsenal from Earliest Times to 1954. Rock Island: U.S. Army, Rock Island Arsenal, 1965. 3 vols. Rock Island Arsenal. The best account of the arsenal's general operations and construction.

"Report of the Chief of Ordnance, 1879, 1881, 1882, 1883, 1885" House Documents, vols. 1907, 1956, 2014, 2095, 2282, 2374. Washington, D.C.: Government Printing Office, 1879, 1880, 1881, 1882, 1884, 1885. Progress reports and descriptions of construction.

Stanley, F. A. "The United States Arsenal at Rock Island -- II." American Machinist (February 9, 1905), 175-178. Notes building's use as a storehouse.

Zabecki, David T. "Father of the Rock Island Arsenal." Field Artillery Journal, 49 (January / February, 1951), 55-56. Discusses Rodman's pioneering work in cannon and propellant design.

D. Likely Sources Not Yet Investigated:

Record Group 156 at the National Archives contains correspondence on the construction and operation of Rock Island Arsenal from 1871 to 1903. This material is also available on 216 reels of microfilm at the Browning Museum, Rock Island Arsenal.

PART IV. PROJECT INFORMATION

This project was part of a program initiated through a memorandum of agreement between the National Park Service and the U.S. Department of the Army. Stanley J. Fried, Chief, Real Estate Branch of Heaquarters DARCOM, and Dr. Robert J. Kapsch, Chief of the Historic American Buildings Survey/Historic American Engineering Record, were program directors. Sally Kress Tompkins of HABS/HAER was program manager, and Robie S. Lange of HABS/HAER was project manager. Building Technology Incorporated, Silver Spring, Maryland, under the direction of William A. Brenner, acted as primary contractor, and MacDonald and Mack Partnership, Minneapolis, was a major subcontractor. The project included a survey of historic properties at Rock Island Arsenal, as well as preparation of an historic properties report and HABS/HAER documentation for 38 buildings. The survey, report, and documentation were completed by Jeffrey A. Hess, historian, Minneapolis; Barbara E. Hightower, historian, Minneapolis; David Arbogast, architectural historian, Iowa City, Iowa; and Robert C. Mack, architect, Minneapolis. The photographs were taken by Robert A. Ryan, J Ceronie, and Bruce A. Harms of Dennett, Muessig, Ryan, and Associates, Ltd., Iowa City, Iowa. Drawings were produced by John Palmer Low, Minneapolis.